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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/001,316	11/01/2001	Hideyuki Harada	P/1071-1485	2339

32172 7590 11/13/2003

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EXAMINER

MAYES, MELVIN C

ART UNIT	PAPER NUMBER
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1734

DATE MAILED: 11/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/001,316

Applicant(s)

HARADA ET AL.

Examiner

Melvin Curtis Mayes

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 13-20 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6-10 is/are allowed.
- 6) ☒ Claim(s) 1-5 and 11 is/are rejected.
- 7) ☒ Claim(s) 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

(1)

Applicant's election with traverse of Claims 1-12 in Paper No. 6 is acknowledged.

The traversal is on the ground(s) that the method claims call for providing first and second green sheets, Claim 20 is in product-by-process format and the search is coextensive. This is not found persuasive because although the method calls for providing and stacking first and second green sheets with, the first green sheet having an opening, the product claims do not require the substrate to be made using first and second green sheets with the first green sheet having an opening. The product can be made by methods beyond that as claimed in the method claims.

The requirement is still deemed proper and is therefore made FINAL.

(2)

This application contains claims 13-20 drawn to an invention nonelected with traverse in Paper No. 6. A complete reply to the final rejection must include cancelation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 103

(3)

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

(4)

Claims 1-5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mandai et al. 6,432,239.

Mandai et al. disclose a method of producing a ceramic multilayer substrate comprising: providing green sheets having an opening portion to form a cavity and providing green sheets having no opening; providing heat shrinkage inhibiting inorganic composition layers; laminating the green sheets and inorganic composition layers such that green sheets and inorganic composition layers are alternately laminated and the opening portions form a cavity in the laminate with the bottom of the cavity formed in such a manner that the green sheet is exposed; and firing the laminate. Mandai et al. also disclose that the laminate may be formed such that inorganic composition layers are provided as the upper side and underside surface layers of the multilayer substrate and disclose that the green sheets and inorganic composition layers may be formed separately and laminated to form a laminate. Mandai et al. disclose using inorganic composition layers of thickness of 1-20 μm with green sheets of thickness of 100 μm (col. 8, line 42 – col. 9, line 34, col. 12, lines 27-39, col. 13, lines 7-30, col. 14, lines 10-15).

By providing the laminate with heat shrinkage inhibiting inorganic composition layer between a first green sheet having an opening to form a cavity and a second green sheet having no opening such that second green sheet is exposed at the bottom of the cavity, a shrink-reducing layer or pad of shrink-reducing material is obviously positioned along the boundary between a first green sheet having an opening for forming a cavity and a second green sheet having no opening but less than the entire surface of the second green sheet at the position corresponding to the opening of the first green sheet so that the

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shrinkage-reducing layer is exposed at an end of the inner peripheral surface of the cavity, as claimed.

By providing the inorganic composition layer between a green sheet having an opening to form a cavity and a green sheet having no opening as disclosed by Mandai et al., a shrinkage-reducing pad having an area greater than 10% of the area of the green sheets and being a film layer of planar surface identical to that of the green sheets, as claimed in Claims 3 and 4, is obviously provided.

By providing the inorganic composition layers of thickness of 1-20 μm and the green sheets of thickness of 100 μm , as disclosed by Mandai et al., the inorganic composition layer (shrinkage-reducing pad) obviously has a thickness less than or equal to 20% of the depth of the cavity, as claimed in Claim 5.

By providing the laminate with inorganic composition layers as the upper side and underside surface layers of the laminate, as disclosed by Mandai et al., two additional shrinkage-inhibiting layers are obviously provided which cover both end faces of the laminate, as claimed in Claim 11.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the

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reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Allowable Subject Matter

(5)

Claims 6-10 are allowed.

(6)

Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

(7)

Applicant's arguments filed August 12, 2003 have been fully considered but they are not persuasive.

Applicant argues that Mandai et al do not teach or suggest positioning a shrinkage-reducing layer at the periphery of the bottom of the cavity and not the entire bottom surface of the cavity.

(8)

As disclosed by Mandai et al., the bottom of the cavity may be formed such that the glass-ceramic green sheet is exposed (col. 9, lines 31-33). Mandai et al. not only disclose exposing the inorganic composition layer (shrinkage-reducing layer) at the bottom of the cavity but also disclose exposing the glass-ceramic green sheet at the bottom of the cavity. This green sheet can only be exposed at the bottom of the cavity if the inorganic composition layer is between green sheets but less than the entire surface of the green sheets at the position corresponding to the opening, as claimed in Claim 1.

Conclusion

(9)

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

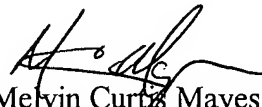
(10)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melvin Curtis Mayes whose telephone number is 703-308-1977. The examiner can normally be reached on Mon-Fri 7:00 AM - 3:30 PM.

After December 18th, the Examiner can be reached at telephone number 571-272-1234 and rightfax number 571-273-1234.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 703-308-3853. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Melvin Curtis Mayes
Primary Examiner
Art Unit 1734

MCM